

EXAMPLE HAZARD MANAGEMENT STATEMENTS

Activity Name: XXXXX, Activity #: XXXXX.XXX

A. Chemical and Biological Concerns

A.1. Mercury or mercury compounds (e.g., dimethyl mercury)

Mercury chloride will be used

Task: Preparation, purification and crystallization of samples.

Hazard(s): Heavy metal compounds, such as mercury chloride will be used (possible use of osmium, platinum, gold).

Control(s): All usage will be in accordance with ISU's Laboratory Safety Manual. Materials will be used in microgram quantities in 50 millimolar buffer solutions (pH 4.5-8.5). Personal protective equipment will be used, including safety glasses, nitrile gloves when handling samples, and/or thermal protective gloves when handling liquid nitrogen. Chemical users will receive Chemical Hazard Communication training for appropriate solutions.

A.4 "Hazardous or toxic chemicals".

Ethanol will be used as a cleaner.

Task: Preparation, purification and crystallization of samples and decontamination of growth media.

Hazard(s): Small amounts of Ethanol are used as cleaner. Heavy metal compounds, such as mercury chloride will be used (possible use of osmium, platinum, gold). Bleach is used for treatment of bacteria growth solution.

Control(s): Materials will be used in microgram quantities in 50 millimolar buffer solutions (pH 4.5-8.5).

- All usage will be in accordance with ISU's Laboratory Safety Manual.
- Personal protective equipment will be used, including safety glasses, nitrile gloves when handling samples, and/or thermal protective gloves when handling liquid nitrogen.
- Chemical users will receive Chemical Hazard Communication training for appropriate solutions.

A.10 "Generation of chemical, mixed, or radioactive waste (as defined by the Ames Laboratory Waste Management Program Manual"

Waste will be handled by ESH&A

Task: Small amounts of waste will be generated throughout this activity.

Hazard(s): Waste generated by this activity may be dangerous to skin and may be regulated by the EPA as hazardous waste.

Control(s): Four liters or less of chemicals will be consigned to waste every 6 months.

- All generator will receive Hazardous Waste Generator Training is required for all chemical users.
- Waste will be handled using PPE (i.e. nitrile gloves and safety glasses)
- Waste containers must be properly labeled using waste sticker.
- Liquid waste will be staged in secondary containment.
- ESH&A will be contacted for waste pick up when container is full or at 90 days.
- Contact ESH&A at <https://webapps.ames.gov/IndexApp/>

A.12 "Biological materials including human, Plant, or animal pathogens"

Bacterial E. Coli will be used; material is not pathogenic to humans.

Task: Lab strain E. Coli is used to produce the proteins for purification and crystallization.

Hazard: E. coli is a biological material.

Control(s): Lab strain E. Coli will be used and is not pathogenic to humans. The growth media will be decontaminated with bleach prior to disposal.

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E. Physical and Mechanical Concerns

E.3 “Activities that require use of safety eyewear, respirators, and /or other forms of personal protective equipment”

Task: Preparation, purification and crystallization of samples and decontamination of growth media with bleach. Use of liquid nitrogen to keep samples frozen.

Hazard(s): Samples may contain small amounts of hazardous materials. Liquid nitrogen is a cryogenic material.

Control(s): Personal protective equipment will be used, including safety glasses, nitrile gloves when handling samples, and/or thermal protective gloves when handling liquid nitrogen.

- Personal Protective Equipment Training is required.
- Safety glasses with side shields will be used.
- A chemical apron will be used when pouring large amounts of solvents.
- A lab coat will be used when performing bench work.
- Nitrile gloves will be used.

E.4 “Use of a glove box”

Task: A 5% hydrogen / argon mixture is used to maintain an inert atmosphere for storing and manipulating samples.

Hazard(s): Injury when moving cylinders, leaks from glove box, connections and gloves

Control: Users will receive activity training from group.

- Compressed gas cylinder safety is required.
- Cylinders will be secured to prevent tipping.
- When not in use, the regulator will be removed and the cylinder capped.
- A cylinder cart will be used when moving cylinders

E.7 “Fluids or gases and pressure delivery systems, other than installed building utilities (> +/- 5 psig)”

Helium, nitrogen, argon pressure delivery systems used

Task: Use of equipment that requires gas cylinder of nitrogen and argon.

Hazard(s): Injury when moving cylinders, gas cylinders are pressure vessels.

Control(s): Users will receive Gas Cylinder training.

E.10 Cryogenic systems (including thermal and/or oxygen deficiency hazards)

Cryogenic System includes liquid nitrogen.

Task: Liquid nitrogen is used to maintain dry dewars at a low temperature.

Hazard: Liquid nitrogen is a cryogenic liquid. Cryogenic System includes liquid nitrogen.

Control(s): Thermal protective gloves will be worn while working with liquid nitrogen. All users will receive Safe Use of Cryogenics training.

F Workplace Concerns

F.6 “Activities that involve lifting/moving of 20 pounds, lifting from awkward positions, or pushing/pulling of heavy objects”

Centrifuge rotors are manually lifted/moved

Task: Centrifuge rotors are changed as necessary.

Hazard: The rotors can weigh up to 40 lbs.

Control(s): All users will receive Sprains and Strains training. Every effort to lessen the lifting burden will be made (i.e. using a cart to move and store the rotors).